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Serial No. 10/673,027
60130-1894; 02MRA0144

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| Appellant: | Le Gallo |
| Serial No.: | 10/673,027 |
| Filed: | September 26, 2003 |
| Group Art Unit: | 2837 |
| Examiner: | Colon Santana, Eduardo |
| Title: | OBSTRUCTION DETECTOR FOR MOVABLE VEHICLE MEMBERS |

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

## APPEAL BRIEF

Dear Sir:

Subsequent to the filing of the Notice of Appeal on June 14, 2006, Appellant hereby submits its brief. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C. $500.00 for the appeal brief fee. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds, P.C.

## REAL PARTY IN INTEREST

The real party in interest is ArvinMeritor Light Vehicle Systems - France, the assignee of the entire right and interest in this Application.

## RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

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PAGE 1/18 * RCVD AT 8/14/2006 2:48:50 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-2/2 * DNIS:2738300 * CSID:12489888363 * DURATION (mm-ss):07-10

## STATUS OF CLAIMS

Claims 1-26 are pending in this application. Claims 1-4, 6-15 and 17-26 stand finally rejected under 102(b). Claims 5 and 16 stands finally rejected under 103(a).

## STATUS OF AMENDMENTS

All amendments have been entered.

## SUMMARY OF CLAIMED SUBJECT MATTER

As shown in Figure 1, this invention relates to a system that detects an obstruction 12 in a path of an openable vehicle member 8 (page 4, line 30 to page 5, line 6). The system includes a direct detector 14 that directly detects the obstruction 12 (page 4, line 7 to 15) and includes a sensor 28 (page 7, lines 20 to 24) and an indirect detector 54 that indirectly detects the obstruction 12 and outputs openable member position information to the direct detector 54 (page 10, lines 11 to 16 and lines 28 to 31). The openable member position information is used to define operating parameters of the direct detector 14 (page 12, lines 26 to 28). This basic structure is set forth in independent claim 1.

Dependent claim 5 depends on claim 3 and adds that the sensor 28 is a light sensor that is a charge coupled device sensor (page 4, lines 28 to 29). Dependent claim 6 depends on claim 1 and adds that the direct detector 14 detects the obstruction 12 according to the openable member position information provided by the indirect detector 54 (page 10, lines 28 to 31). Dependent claim 18 depends on claim 1 and adds that operation of the direct detector 14 is adapted according to the openable member position information outputted by the indirect detector 54 (page 10, lines 28 to 31).

Independent claim 7 recites a method for detecting an obstruction 12 in a path of an openable member 8 (page 4, line 30 to page 5, line 6). The method includes the steps of indirectly detecting the obstruction 12 by detecting a force exerted by the obstruction 12 on the openable member 8 using an indirect detector 54 and outputting openable member position information (page 10, lines 11 to 16 and lines 28 to 31). The method further includes the steps of directly detecting the obstruction 12 in

the path of the openable member 8 with a direct detector 14 based on the openable member position information (page 4, line 7 to 15 and page 10, lines 11 to 16 and lines 28 to 31). The direct detector 14 includes a sensor (page 7, lines 20 to 24) and uses the openable member position information to define operating parameters of the direct detector 14 (page 12, liens 26 to 28).

Dependent claim 8 depends on claim 7 and adds that the step of directly detecting the obstruction 12 comprises detecting a light distribution along a closing line of the openable member 8 (page 3, lines 3 to 4). Dependent claim 21 depends on claim 7 adds the step of adapting operation of the direct detector 14 according to the openable member position information outputted by the indirect detector 54 (page 10, lines 28 to 31).

Independent claim 14 recites an anti-trapping system for an openable vehicle member 8 including a drive system 46 (page 9, line 30) that controls movement of the openable vehicle member 8 and an indirect detector 54 that detects a force exerted by an obstruction 12 on the openable vehicle member 8 (page 10, lines 11 to 16 and lines 28 to 31). The system further includes a direct detector 14 having a light sensor 28 that detects a light distribution affected by the obstruction 12 and receives openable member position information from the indirect detector 54 (page 4, lines 7 to 15 and page 10, lines 11 to 16 and lines 28 to 31). The openable member position information is used to define operating parameters of the direct detector 14 (page 12, lines 26 to 28). An analysis circuit 30 conducts an analysis of light received by the light sensor 28 and outputs an interruption signal to the drive system 48 to stop movement of the openable vehicle member 8 if the obstruction 12 is detected (page 10, lines 11 to 16).

Dependent claim 16 depends on claim 14 and adds that the sensor 28 is a light sensor that is a charge coupled device sensor (page 4, lines 28 to 29). Dependent claim 17 depends on claim 14 and recites that the direct detector 14 detects the obstruction 12 according to the openable member position information provided by the indirect detector 54 (page 10, lines 28 to 31). Dependent claim 24 depends on claim 14 and recites that operation of the direct detector 14 is adapted according to the openable member position information outputted by the indirect detector 54 (page 10, lines 28 to 31).

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Are Claims 1-4, 6-15 and 17-26 properly rejected under 35 U.S.C. 102(b) based on O'Connor et al. (WO 01/36772)?

B. Are Claim 5 and 16 properly rejected under 35 U.S.C. 103(a) based on O'Connor et al. in view of Breed et al. (U.S. Patent No. 6,442,465)?

## ARGUMENTS

### A. Anticipation of Claims 1-4, 6-15 and 17-26 based on O'Connor et al.

**Claims 1-4, 19 and 20**

The Examiner finally rejected Claims 1-4, 19 and 20 as being anticipated by O'Connor et al. The present invention is patentable and strikingly different from O'Connor et al. As described by the claims, the present invention provides a system that detects an obstruction in a path of an openable vehicle member including a direct detector including a sensor that directly detects the obstruction and an indirect detector that indirectly detects the obstruction and outputs openable member position information to the direct detector, wherein the openable member position information is used to define operating parameters of the direct detector. [See Claim 1]. Claims 1-4, 6-15 and 17-26 of the present invention all share these same or similar features. [See Claims 1-4, 6-15 and 17-26].

The Examiner states that the claimed invention is anticipated because O'Connor et al. discloses an obstruction system that includes an indirect detector that outputs position information as operating parameters to the direct detector. However, the claimed invention is not directed to this feature. The claimed invention recites that the openable member position information is used to *define* operating parameters of the direct detector. The claimed invention does not recite that the opeanble member position information is used *as* operating parameters.

Additionally, O'Connor et al. does not disclose a system including an indirect detector that indirectly detects an obstruction and outputs opeanble member position information to a direct detector that is used to define operating parameters of the direct detector as claimed. O'Connor et al. discloses an obstacle detection system including a non-contact detection system 14 and a contact

detection system 100. The non-contact system 14 avoids entrapment of an obstacle, and the contact system 100 only provides a supplemental obstruction detection system when the non-contact system 14 sensitivity is less than optimal (page 23, lines 15-21). The contact system 100 outputs the position of a closure 12, but this information is solely used supplementally with the non-contact system 14.

The Examiner refers to page 26 of O'Connor et al. to show that the system has the capacity to adjust. O'Connor et al. discloses that if the contact system 100 establishes that no obstacle is present, the combined system can dynamically adjust to variations in the background-reflected radiation (page 26, second paragraph). If the non-contact system 14 detects returned energy levels outside predetermined norms (usually indicating an obstacle) and the contact system 100 does not register aberrant performance of the closure 12, the combined system may indicate the absence of an obstacle. A controller 102 may then use the measurements of the non-contact system 14 to adjust the non-contact system 14 parameters. The adjustment occurs if the contact system 100 and the non-contact system 14 receive contrary information. However, the adjustment is not made according to position information of the closure 12. The adjustment is made according to the measurement of the non-contact system 14.

The sensitivity of the non-contact system 14 also depends on the closure position. The position of the closure 12 defines the point at which factors from the non-contact system 14 are considered or emphasized in determining if an obstacle is present (page 24, lines 8-10). For example, O'Connor et al. discloses that over the lower 75% of an aperture, the non-contact system 14 is extremely sensitive (page 24, lines 12-14). The controller 102 may solely rely on the output from the non-contact system 14 (page 24, lines 15-16). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). However, the information from the contact system 100 is not used to define operating parameters of the non-contact system 14 as claimed. Instead, in the final 25%, information from both systems 14 and 100 is used to determine if an obstacle is present. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn.

**Claim 6**

The rejection of claim 6 is separately contested from the rejection of claims 1-4, 19 and 20. Claim 6 recites that the direct detector detects the obstruction according to the openable member position information provided by the indirect detector. O'Connor et al. discloses that in the lower 75% of an aperture, the non-contact system 14 is extremely sensitive (page 24, lines 12-14). A controller 102 may solely rely on the output from the non-contact system 14 (page 24, lines 15-16). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). However, the information from the contact system 100 is not used to define operating parameters of the non-contact system 14 as claimed. Instead, in the final 25%, information from both systems 14 and 100 is used to determine if an obstacle is present. The non-contact system 14 does not detect an obstruction according to openable member position information provided by the contact system 100. Instead, the controller 102 uses information from both the systems 14 and 100 in the final 25% of the aperture. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn.

**Claims 7, 22 and 23**

The Examiner states that claims 7, 22 and 23 are anticipated because O'Connor et al. discloses an obstruction system that includes an indirect detector that outputs position information as operating parameters to the direct detector. However, the claimed invention is not directed to this feature. The claimed invention recites that the openable member position information is used to *define* operating parameters of the direct detector. The claimed invention does not recite that the opeanble member position information is used *as* operating parameters.

Additionally, O'Connor et al. et al. does not disclose a system including an indirect detector that indirectly detects an obstruction and outputs opeanble member position information to a direct detector that is used to define operating parameters of the direct detector as claimed. O'Connor et al. discloses an obstacle detection system including a non-contact detection system 14 and a contact detection system 100. The non-contact system 14 avoids entrapment of an obstacle, and the contact

system 100 only provides a supplemental obstruction detection system when the non-contact system 14 sensitivity is less than optimal (page 23, lines 15-21). The contact system 100 outputs the position of a closure 12, but this information is solely used supplementally with the non-contact system 14.

The Examiner refers to page 26 of O'Connor et al. to show that the system has the capacity to adjust. O'Connor et al. discloses that if the contact system 100 establishes that no obstacle is present, the combined system can dynamically adjust to variations in the background-reflected radiation (page 26, second paragraph). If the non-contact system 14 detects returned energy levels outside predetermined norms (usually indicating an obstacle) and the contact system 100 does not register aberrant performance of the closure 12, the combined system may indicate the absence of an obstacle. A controller 102 may then use the measurements of the non-contact system 14 to adjust the non-contact system 14 parameters. The adjustment occurs if the contact system 100 and the non-contact system 14 receive contrary information. However, the adjustment is not made according to position information of the closure 12. The adjustment is made according to the measurement of the non-contact system 14.

The sensitivity of the non-contact system 14 also depends on the closure position. The position of the closure 12 defines the point at which factors from the non-contact system 14 are considered or emphasized in determining if an obstacle is present (page 24, lines 8-10). For example, O'Connor et al. discloses that over the lower 75% of an aperture, the non-contact system 14 is extremely sensitive (page 24, lines 12-14). The controller 102 may solely rely on the output from the non-contact system 14 (page 24, lines 15-16). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). However, the information from the contact system 100 is not used to define operating parameters of the non-contact system 14 as claimed. Instead, in the final 25%, information from both systems 14 and 100 is used to determine if an obstacle is present. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn.

Claims 8-13

Claims 8 and 13 are separately contested from the rejection of claim 7. Claims 8-13 recite that the step of directly detecting the obstruction comprises detecting a light distribution along a closing line of the openable member. O'Connor et al. does not disclose this feature. In O'Connor et al., the non-contact system 14 is extremely sensitive in the lower 75% of an aperture (page 24, lines 12-14). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). The systems 14 and 100 do not detect a light distribution along a closing line of the aperture 12 because the systems 14 and 100 monitor information along the entire space of the aperture. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn

Claims 14, 15, 25 and 26

The Examiner states that claims 14, 15, 25 and 26 are anticipated because O'Connor et al. discloses an obstruction system that includes an indirect detector that outputs position information as operating parameters to the direct detector. However, the claimed invention is not directed to this feature. The claimed invention recites that the openable member position information is used to *define* operating parameters of the direct detector. The claimed invention does not recite that the opeanble member position information is used *as* operating parameters.

Additionally, O'Connor et al. does not disclose a system including an indirect detector that indirectly detects an obstruction and outputs opeanble member position information to a direct detector that is used to define operating parameters of the direct detector as claimed. O'Connor et al. discloses an obstacle detection system including a non-contact detection system 14 and a contact detection system 100. The non-contact system 14 avoids entrapment of an obstacle, and the contact system 100 only provides a supplemental obstruction detection system when the non-contact system 14 sensitivity is less than optimal (page 23, lines 15-21). The contact system 100 outputs the position of a closure 12, but this information is solely used supplementally with the non-contact system 14.

The Examiner refers to page 26 of O'Connor et al. to show that the system has the capacity to adjust. O'Connor et al. discloses that if the contact system 100 establishes that no obstacle is present, the combined system can dynamically adjust to variations in the background-reflected radiation (page 26, second paragraph). If the non-contact system 14 detects returned energy levels outside predetermined norms (usually indicating an obstacle) and the contact system 100 does not register aberrant performance of the closure 12, the combined system may indicate the absence of an obstacle. A controller 102 may then use the measurements of the non-contact system 14 to adjust the non-contact system 14 parameters. The adjustment occurs if the contact system 100 and the non-contact system 14 receive contrary information. However, the adjustment is not made according to position information of the closure 12. The adjustment is made according to the measurement of the non-contact system 14.

The sensitivity of the non-contact system 14 also depends on the closure position. The position of the closure 12 defines the point at which factors from the non-contact system 14 are considered or emphasized in determining if an obstacle is present (page 24, lines 8-10). For example, O'Connor et al. discloses that over the lower 75% of an aperture, the non-contact system 14 is extremely sensitive (page 24, lines 12-14). The controller 102 may solely rely on the output from the non-contact system 14 (page 24, lines 15-16). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). However, the information from the contact system 100 is not used to define operating parameters of the non-contact system 14 as claimed. Instead, in the final 25%, information from both systems 14 and 100 is used to determine if an obstacle is present. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn.

**Claim 17**

The rejection of claim 17 is separately contested from the rejection of claim 14. Claim 17 recites that the direct detector detects the obstruction according to the openable member position information provided by the indirect detector. O'Connor et al. discloses that in the lower 75% of an

aperture, the non-contact system 14 is extremely sensitive (page 24, lines 12-14). A controller 102 may solely rely on the output from the non-contact system 14 (page 24, lines 15-16). In the final 25% of the aperture, input from the contact system 100 can additionally be utilized to determine if an obstacle is present (page 24, lines 25-28). However, the information from the non-contact system 100 is not used to define operating parameters of the contact system 14 as claimed. Instead, in the final 25%, information from both systems 14 and 100 is used to determine if an obstacle is present. The non-contact system 14 does not detect an obstruction according to openable member position information provided by the contact system 100. Instead, the controller 102 uses information from both the systems 14 and 100 in the final 25% of the aperture. The claimed invention is not anticipated, and Appellant respectfully requests that the rejection be withdrawn.

<u>Claims 18, 21 and 24</u>

The rejection of claims 18, 21 and 24 is separately contested from the rejection of claims 1, 7 and 14. Claims 18, 21 and 24 recite that operation of the direct detector is adapted according to the openable member position information outputted by the indirect detector. O'Connor et al. does not disclose this feature. O'Connor et al. discloses that if the contact system 100 establishes that no obstacle is present, the combined system can dynamically adjust to variations in the background-reflected radiation (page 26, second paragraph). If the non-contact system 14 detects returned energy levels outside predetermined norms (usually indicating an obstacle) and the contact system 100 does not register aberrant performance of the closure, the combined system may indicate the absence of an obstacle. The controller 102 may then use the measurements of the non-contact system 14 to adjust the non-contact system 14 parameters. The adjustment occurs if the contact system 100 and the non-contact system 14 receive contrary information. However, the adjustment is not made according to position information of the closure 12. The adjustment is made according to the measurement of the non-contact system 14. The operation of the non-contact system 14 is not adapted according to the closure 12 information outputted by the contact system 100 as claimed. The claimed invention is not anticipated.

**B. Obviousness of Claims 5 and 16 based on O'Connor et al. in view of Breed et al.**

<u>Claims 5 and 16</u>

Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. in view of Breed et al. The Examiner admits that Breed et al. does not disclose a light sensor that is a charge coupled device sensor. The Examiner states that Breed et al. discloses a charge coupled device sensor, and it would be obvious to provide a charge coupled device sensor in O'Connor et al. because of Breed et al. Appellant respectfully disagrees.

The claimed invention is not obvious. Claims 5 and 16 depend on patentable independent claims 1 and 14, respectively, and are allowable for the reasons set forth above. Adding Breed et al. to O'Connor et al. still does not render the claimed invention obvious because neither reference teaches a system that detects an obstruction in a path of an openable vehicle member including an indirect detector that indirectly detects the obstruction and outputs opeanble member position information to a direct detector that is used to define operating parameters of the direct detector. Therefore, the combination of the references does not disclose, suggest or teach the claimed invention. The claimed invention is not obvious.

## CONCLUSION

For the reasons set forth above, the rejection of all claims is improper and should be reversed. Appellant respectfully requests such an action.

Respectfully Submitted,

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**CERTIFICATE OF FACSIMILE**

I hereby certify that this appeal brief is being facsimile transmitted to the United States Patent and Trademark Office, 571-273-8300 on August 14, 2006.

Amy M. Spaulding

Amy M. Spaulding

# CLAIM APPENDIX

1. A system that detects an obstruction in a path of an openable vehicle member, comprising:

a direct detector that directly detects the obstruction, the direct detector including a sensor; and

an indirect detector that indirectly detects the obstruction and outputs openable member position information to the direct detector, wherein the openable member position information is used to define operating parameters of the direct detector.

2. The system of claim 1, wherein the indirect detector detects a force exerted by the obstruction on the openable vehicle member.

3. The system of claim 1, wherein the sensor is a light sensor that receives light in a vicinity of the obstruction, and the direct detector includes an analysis circuit that conducts an analysis of the light received by the light sensor.

4. The system of claim 3, wherein the analysis circuit conducts the analysis by comparing a distribution of the light received by the light sensor to a reference distribution.

5. The system of claim 3, wherein the light sensor is a charge coupled device sensor.

6. The system of claim 1, wherein the direct detector detects the obstruction according to the openable member position information provided by the indirect detector.

7. A method for detecting an obstruction in a path of an openable member, comprising the steps of:

indirectly detecting the obstruction by detecting a force exerted by the obstruction on the openable member using an indirect detector;

outputting openable member position information;

directly detecting the obstruction in the path of the openable member with a direct detector based on the openable member position information, wherein the direct detector includes a sensor; and

using the openable member position information to define operating parameters of the direct detector.

8. The method of claim 7, wherein the step of directly detecting the obstruction comprises detecting a light distribution along a closing line of the openable member.

9. The method of claim 8, wherein the step of directly detecting the obstruction comprises:

comparing the light distribution along the closing line with a reference distribution; and

indicating a presence of the obstruction when the step of comparing the light distribution along the closing line with the reference distribution shows a variation between the light distribution and the reference distribution.

10. The method of claim 9, wherein the step of directly detecting the obstruction further comprises a step of updating the reference distribution based on the openable member position information.

11. The method of claim 9, wherein the reference distribution is based on the openable member position information.

12. The method of claim 9, wherein the step of indicating the presence of the obstruction indicates the presence of the obstruction when the step of comparing the light distribution along the closing line with the reference distribution shows that the variation between the light distribution and the reference distribution is greater than a predetermined threshold.

13. The method of claim 12, wherein the predetermined threshold is variable based on the openable member position information.

14. An anti-trapping system for an openable vehicle member, comprising:

a drive system that controls movement of the openable vehicle member;

an indirect detector that detects a force exerted by an obstruction on the openable vehicle member; and

a direct detector comprising:

a light sensor that detects a light distribution affected by the obstruction and receives openable member position information from the indirect detector, wherein the openable member position information is used to define operating parameters of the direct detector, and

an analysis circuit that conducts an analysis of light received by the light sensor and outputs an interruption signal to the drive system to stop movement of the openable vehicle member if the obstruction is detected.

15. The system of claim 14, wherein the analysis circuit compares the light distribution received by the light sensor to a reference distribution.

16. The system of claim 14, wherein the light sensor is a charge coupled device sensor.

17. The system of claim 14, wherein the direct detector detects the obstruction according to the openable member position information provided by the indirect detector.

18. The system of claim 1, wherein operation of the direct detector is adapted according to the openable member position information outputted by the indirect detector.

19. The system of claim 1, wherein the direct detector further includes a processor that processes the openable member position information from the indirect detector.

20. The system of claim 1, wherein the direct detector further includes a processor that processes information which is detected by the sensor.

21. The method of claim 7, further including a step of adapting operation of the direct detector according to the openable member position information outputted by the indirect detector.

22. The method of claim 7, further including a step of processing information from the sensor with a processor of the direct detector.

23. The method of claim 7, further including a step of processing the openable member position information from the indirect detector with a processor of the director detector.

24. The system of claim 14, wherein operation of the direct detector is adapted according to the openable member position information outputted by the indirect detector.

25. The system of claim 14, wherein the direct detector further includes a processor that processes the openable member position information from the indirect detector.

26. The system of claim 14, wherein the direct detector further includes a processor that processes information which is detected by the light sensor.

# EVIDENCE APPENDIX

None

# RELATED PROCEEDINGS APPENDIX

None

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